

NEW DESCRIPTIONS

GLYPTOTHORAX DAVISSINGHI (PISCES: SISORIDAE) A NEW CAT FISH FROM NILAMBUR IN THE NILGIRI BIOSPHERE RESERVE, SOUTH INDIA¹

A. MANIMEKALAN^{2,3} & H.S.DAS²

(With three text-figures)

A new species of *Glyptothorax* is described from Karim Puzha, Nilambur, Western Ghats. The specimen is different from all other known *Glyptothorax* species, characterised by dorsal fin serrated posteriorly, plaited paired fins, adhesive apparatus with distinct central pit and occipital process not reaching the basal bone of the dorsal fin.

INTRODUCTION

During the course of our survey of fishes in the Nilgiri Biosphere Reserve (NBR), a specimen of a new *Glyptothorax*, Sisoridae was collected from the Karim Puzha and its tributary Panna Puzha, Maancheri, Nilambur forest (Kerala), a part of the Nilgiri Biosphere Reserve (NBR) of Western Ghats.

Karim Puzha is one of the westward flowing river systems in the Chaliyar river basin. It originates from the Kundah hills and drains through the steep western slopes of the Nilgiri hills (Nilambur, Maancheri, Edakode and New Amarambalam) with a series of rapids, cascades and falls. Karim Puzha is one of the main water source among the other three rivers (Chaliyar Puzha, Punna Puzha and Pallisseri Puzha) in Chaliyar river basin. It flows through the dense moist evergreen forest areas of Nilambur Reserve Forest.

Five specimens of *Glyptothorax* have been collected from river Karim Puzha during the survey. Occurrence of *Tor khudree*, a rare and threatened fish species of Karim Puzha here, is

remarkable. Karim Puzha is a good breeding habitat for *Tor khudree*. The present species differs from all other *Glyptothorax* species described so far: Menon (1954), Jayaram (1981), Day (1994) and Talwar and Jhingran (1991).

Glyptothorax davissinghi sp. nov.

(Fig. 1)

MATERIAL AND METHODS

Material examined: 5 specimens 68.0-121.0 mm standard length (SL), from Karim Puzha and its tributary Panna Puzha, Maancheri, Nilambur forest, Kerala. The first specimen was collected when tribals (Cholanayakan) were demonstrating a traditional fishing technique by using plant material (bark of *Acacia intsia*) as fish poison. Later, some individuals were collected by dip netting under and around rocks. Specimens were measured using dial calipers with a least count of 0.02 mm, following standard practices. Description of the new species is based on the pooled average of all the samples (Table 1). Data is presented as standard length (SL) and head length (HL), with the mean followed by the range in parenthesis.

Diagnosis: Head and snout greatly depressed and broad. Eyes small, superior, subcutaneous. 8 barbels—2 nasal barbels, 2 maxillary barbels and four mandibular barbels. Maxillary longer with broad base reaching beyond base of pectoral fin. Mandibular barbels do not reach gill opening. Adhesive apparatus

¹Accepted July, 1996

²Sálim Ali Centre for Ornithology and Natural History (SACON), Kalampalayam P.O., Coimbatore-641 010. Tamil Nadu.

³Present address:

Senior Research Fellow (CSIR),
Centre for Environmental Sciences,
Manonmaniam Sundaranar University,
Alwarkurichi, Tamil Nadu 627 412.

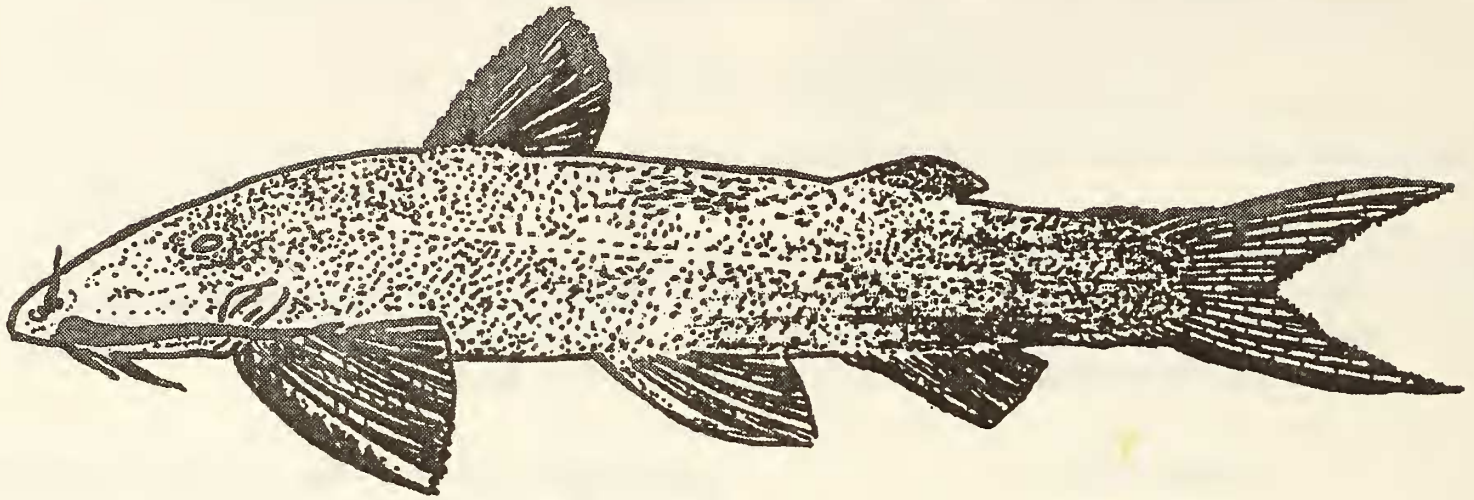


Fig. 1. Lateral view of *Glyptothorax davissinghi* sp. nov., 121.0 mm SL.

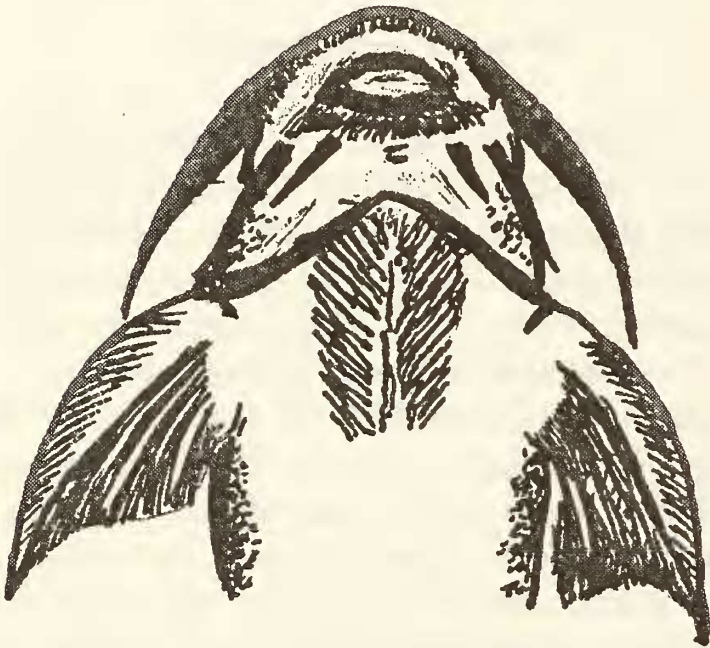


Fig. 2. Plaited paired fins and adhesive apparatus with distinct central pit.

well developed with distinct central pit (Fig 2). Dorsal fin serrated posteriorly. All fins with white edges. Plaited paired fins with serration. Origin of dorsal fin closer to snout than to caudal. Occipital process not reaching dorsal fin base

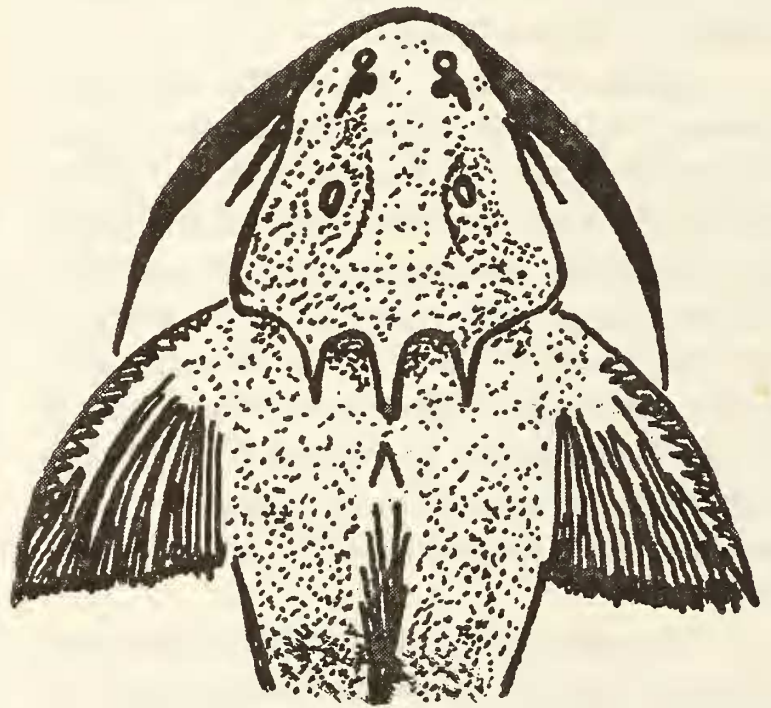


Fig. 3. Occipital process not reaching the basal bone of the dorsal fin.

(Fig. 3). Body with rough granular skin, dark grey without bands. Lips not fringed. Ventral side of the body golden in colour in living condition and white on preservation, up to ventral fin. Caudal fin deeply forked.

TABLE I
MORPHOMETRIC DATA OF *GLYPTOTHORAX DAVISSINGHI*
SP. NOV. (5 SPECIMENS)

Measurement details	SL		HL	
	\bar{X}	range	\bar{X}	range
Standard length 99.2 mm (68.0-121.0)				
Head length (HL)	4.48	4.32-4.51		
Body depth	6.22	5.76-6.48		
Predorsal distance	3.03	2.76-3.16		
Postdorsal distance	1.26	1.21-1.32		
Height of dorsal fin	6.12	5.88-6.72	1.37	1.29-1.56
Length of dorsal fin	4.77	4.53-5.04	1.25	1.14-1.33
Length of pectoral fin	4.52	4.23-4.95	1.23	1.04-1.47
Length of pelvic fin	5.27	5.22-5.38		
Length of anal fin	5.51	5.24-5.72		
Caudal fin length	4.88	4.70-5.15		
Distance from pectoral and pelvic base	3.70	3.62-3.81		
Distance from pelvic to anal origin	4.55	4.38-4.84		
Length of body cavity	2.08	2.00-2.15		
Depth of head			2.13	2.00-2.33
Maximum head width			1.21	1.17-1.24
Eye diameter			10.01	9.33-10.67
Snout length			1.76	1.69-1.87
Interorbital width			3.15	3.00-3.50
Length of caudal peduncle/Depth of caudal peduncle	1.99	1.92-2.10		
Height of dorsal/Base of dorsal	1.51	1.38-1.68		
Height of anal fin/ Base of anal	0.93	0.92-0.94		
Predorsal distance/ Postdorsal distance	0.41	0.42-0.46		

Description: (Table 1) D. 1/6; P. 1/9-10; V. 1/8, a. 2/5; C. 6/16-18. Dorsal side of the body convex, ventral side almost flat. Length of head 5.39 (5.14-5.59) in total length (TL), 4.48 (4.32-4.51) in standard length, its depth 2.13 (2.00-2.33) and width 1.21 (1.17-1.24) in head length; body depth 6.52 (6.00-6.87) in total length; 6.22 (5.76-6.48) in standard length; predorsal distance 3.03 (2.76-3.16), postdorsal distance 1.26 (1.21-1.32), distance from pectoral base to pelvic base (3.70 (3.62-3.81), distance from pelvic to anal 4.55 (4.38-4.84), length of body cavity 2.08

(2.00-02.15) in SL; dorsal situated closer to snout than to caudal base; last unbranched ray strong, posteriorly serrated; postdorsal distance 0.41 (0.42-0.46) in predorsal distance; height of dorsal fin 6.12 (5.88-6.72) SL and 1.37 (1.29-1.56) in head length; base of dorsal fin 1.51 (1.38-1.55) in dorsal fin height; length of pectoral fin 4.52 (4.23-4.95) in SL and 1.23 (1.04-1.47) in HL; pelvic fin 5.27 (5.22-5.38) in SL; anal fin length 5.51 (5.24-5.72) in SL; caudal fin 4.88 (4.70-5.15) in SL; depth of caudal peduncle 1.99 (1.92-2.10) in its length. Eye diameter 10.01 (9.33-10.67), snout length 1.76 (1.69-1.87) and interorbital width 3.15 (3.00-3.50) in head length. Four pairs of barbels, one pair each of maxillary, nasal and two of mandibular; maxillary pair with broad base.

Holotype: Sálím Ali Centre for Ornithology and Natural History (SACON), Coimbatore; Register No. SACON/SSGs 11; 112 mm SL; Karim Puzha and its tributary Panna Puzha 7 km upstream from Cholanayakan colony at Maancheri, Nilambur Reserve Forest, Kerala, India; altitude 160-190 m; moist evergreen forest; 16th March and 7th April 1995; Coll.: Late D.F. Singh, Mathew K. Sebastian and A. Manimekalan.

Paratypes: 5 specimens, with same details as above, range 68-121 mm SL, data as above. Type specimens deposited in SACON; one specimen will be sent to the national collection of the Zoological Survey of India (ZSI), Chennai.

Relationship: This new species has been compared with related species (Table 2) such as *Glyptothorax annandalei* Hora and *Glyptothorax madraspatanum* (Day). Features such as the dorsal fin serrated posteriorly, plaited paired fins, adhesive apparatus with central pit and occipital process not reaching the basal of the dorsal fin easily distinguish *Glyptothorax davissinghi* sp. nov. from the above mentioned species. Both the species were described from Bhavani river at the base of Nilgiri hills, *Glyptothorax madraspatanum* from Bhavani and Moyar rivers and their tributaries (Rajan, 1956). *Glyptothorax annandalei* Hora was reported from Silent Valley,

TABLE 2
COMPARISON OF CHARACTERS IN THE RELATED SPECIES

Characters	<i>G. davissinghi</i> sp. nov.	<i>G. annandalei</i> Hora	<i>G. madraspatanum</i> (Day)
Dorsal fin	Strong, serrated posteriorly	With a weak entire spine, without serration	With a weak entire spine, with serration
Pectoral fin	Plaited	Plaited ventrally	Non-plaited
Adhesive apparatus	Well developed, longer than broad, with a distinct central pit, reddish.	Longer than broad without a central pit, yellowish	Longer than broad, without a central pit, yellowish
Occipital process	Not reaching basal bone of dorsal fin	Reaching basal bone of dorsal fin	Reaching basal bone of dorsal fin
Body	Rough with granules dark grey without longitudinal bands	Granulated, dark grey, with 2 longitudinal bands	Smooth, yellowish with dark bands
Maxillary barbels	Reaching beyond base of pectoral fin	Reaching 3rd or 4th pectoral ray.	Reaching pectoral base

Kerala (Rema Devi and Indra, 1986). During the present survey, these two species were also collected from same rivers.

Etymology: The nominal name is given in memory of the late Dr. Davis Franc Singh (D.F. Singh), Senior Scientist, Sálím Ali Centre for Ornithology and Natural History (SACON), who was involved in survey, conservation of fish and fish habitat of Western Ghats for more than a decade and was the brain behind this survey.

Coloration: In live specimens the body is dark grey and the ventral side of the body is of a golden colour; in formalin white in colour up to ventral fin. Adhesive apparatus reddish. All fins have white edges.

Maximum size: 121 mm SL.

Range: Karim Puzha, Kerala, Western Ghats.

Status: Endemic to Karim Puzha, Kerala, Western Ghats.

KEY TO SOUTH INDIAN SPECIES OF
GLYPTOTHORAX

- 1a. Adhesive thoracic apparatus well developed.. 2
1b. Adhesive apparatus feebly developed, as long as broad *G. anamalaiensis*
2a. Adhesive apparatus longer than broad 3
2b. Adhesive apparatus broader than long without central pit *G. housei*

- 3a. Adhesive apparatus without central pit 4
3b. Adhesive apparatus with central pit 5
4a. Occipital process reaching basal bone of dorsal, pectoral fin non-plaited *G. madraspatanum*
4b. Occipital process apposed to basal bone of dorsal fin *G. lonah*
5a. Dorsal fin spine weak, smooth .. *G. annandalei*
5b. Dorsal fin spine strong, serrated posteriorly, pectoral fin plaited ventrally *G. davissinghi*

ACKNOWLEDGEMENTS

The paper forms part of the "Studies on the status and conservation perspectives of rare and endemic fishes of the Nilgiri Biosphere Reserve (NBR)" sponsored by MOEF, Govt. of India. We are highly indebted to the late Dr. D.F. Singh who planned and designed the study till his untimely demise. We thank the Director, SACON for facilities, Kerala forest department for permission for the study, and Mr. M. Murali, DFO. Nilambur (South) forest division for his kind co-operation. We are grate-ful to Dr. A.G.K. Menon & Dr. Rema Devi, ZSI, Chennai for confirming the identification and for comments and Mr. V. Gokula, Research Fellow, SACON for line drawing.

REFERENCES

- DAY, F. (1994): The fishes of India; being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma and Ceylon. Rev. edn, Today & Tomorrow's Book Agency, New Delhi, 788 pp., 195 pls.
- JAYARAM, K.C. (1981): The freshwater fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka. Zoological Survey of India, Calcutta.
- MENON, M.A.S. (1954): Notes on Fishes of the Genus *Glyptothorax* Blyth. *Rec. Indian Mus.* Calcutta. Vol. LII(I), 27-54.
- RAJAN, S. (1956): Notes on a collection of fish from the headwaters of the Bhavani river, South India. *J. Bombay nat. Hist. Soc.* 53(1): 44-48.
- REMA DEVI, K. & T.J. INDRA (1986) Fishes of Silent Valley. *Rec. Zool. Surv. India*, 84(1-4): 243-257.
- TALWAR, P.K. & A.G. JHINGRAN (1991): Inland Fishes. Oxford & IBH Publishing Co. Pvt. Ltd., Vol. II. 639-665. New Delhi.